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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------|-------------|----------------------|---------------------|------------------|
| 09/575,157 | 05/23/2000 | Kia Silverbrook | PP09US | 9130 |
| 24011 | 7590 | 06/07/2004 | EXAMINER | |
| HERNANDEZ, NELSON D | | | | 6 |
| ART UNIT | | PAPER NUMBER | | |
| 2612 | | | | |

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------|--------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/575,157 | SILVERBROOK ET AL. |
| | Examiner | Art Unit |
| | Nelson D. Hernandez | 2612 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 April 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-24 is/are pending in the application.
 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 12-24 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 23 May 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 3.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 12-24 in Paper No. 5 is acknowledged.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. Examiner noticed the amendments made on tables on page 1 and 2 on the specifications. Amendments on specifications are acceptable.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2612

5. Claims 12-14 rejected under 35 U.S.C. 102(e) as being anticipated by Safai, US 6,642,956 B1.

Regarding claim 12, Safai discloses a programmable image processor (Fig. 3) for a camera module having an image sensor that captures an image, said image processor comprising: a central processing unit (Microprocessor in fig. 3: 312; col. 5, lines 54-57); one or more interface units (Buses in fig. 3; col. 4, lines 57-64; col. 6, lines 45-60) communicating with components of said camera module; image storage memory storing said image (Fig. 3: 314 and 311; col. 4, lines 7-20); an image capture unit (Fig. 3: 302; col. 5, lines 43-54) in communication with said image storage memory, said central processing unit and said image sensor, said image capture unit capturing said image from said image sensor and storing said image in said image storage memory; and image processing units (Fig. 3: 310; col. 5, lines 43-54) in communication with said image storage memory to transform said image for transmission by a serial bus interface (USB PORT in fig. 3: 320; col. 7, lines 8-28). Also, Safai inherently teaches the use of program memory to store the program steps for execution by the central processor unit by teaching that the image processor is a programmable image processor (Col. 3, lines 47-57; col. 7, lines 46-56) to operate the digital camera to capture and process images, since that a programmable processor requires memory storage so as to store the program steps for execution by the central processor unit.

Regarding claim 13, Safai teaches that the integrated circuit in which the digital image processor is formed is an application specific integrated circuit (ASIC) as a possible implementation (Col. 7, lines 45-56).

Regarding claim 14, Safai inherently teaches the use of a scratch memory associated with said central processing unit for variable storage by teaching the use of programmable data buffers and/or internal registers for storing data appropriate to an operational mode of the digital camera (Col. 12, lines 25-43).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17 and 19-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Safai, US 6,642,956 B1.

Regarding claim 17, Safai does not explicitly disclose that the central processing unit is a micro-controller running at about 1 MHz.

However, examiner takes Official Notice that the use of different speeds for microprocessors is well known and would have been obvious to one of ordinary skilled in the art to use a microprocessor running at a specific speed depending on the application. The motivation to do so would be to process the images taken by the digital camera with a speed as necessitated by the user.

Regarding claim 19, Safai does not explicitly teach that the image storage memory is less than 1 Mbytes.

However, examiner takes Official Notice that using different sizes of memory storage is notoriously well known in the art and would have been obvious to one of

ordinary skilled in the art to use a storage memory with a predetermined memory size to store image data.

Regarding claim 20, grounds for rejecting claim 19 apply here.

Regarding claim 21, Safai does not explicitly disclose that the program memory is no greater than 8 Kbytes.

However, examiner takes Official Notice that using different sizes of memories for storing program steps for image processors is notoriously well known in the art and would have been obvious to one of ordinary skilled in the art to select a specific size of memory to store the program steps for execution by the image processor depending on the complexity or sizes of the program to be stored in the memory.

Regarding claim 22, Safai does not explicitly teach that the scratch memory is no greater than 2 Kbytes.

However, examiner takes Official Notice that using different sizes of memory for registers or buffers is notoriously well known in the art and would have been obvious to one of ordinary skilled in the art to have different size of memories for registers or buffers as required by the application.

8. Claims 15 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Safai, US 6,642,956 B1 in view of Staats, US 2001/0019561 A1.

Regarding claims 15 and 16, Safai teaches the serial bus interface for communicating the images or processed image data to a serial bus interface of other devices (Col. 7, lines 7-28), but does not explicitly teach that is for a compact printer

system including one or more further modules, and that the serial bus is communicating power between the camera module and the one or more further modules.

However, Staats teaches the use of a Serial Bus to interconnect a camera (Fig. 1: 32) to a printer system (Fig. 1) including other further modules (monitor 18, VCR 36, printer 26 in fig. 1), wherein the serial bus transmits power and data between the connected devices (Page 2, ¶ 0021).

Therefore taking the combined teaching of Safai in view of Staats as a whole, it would have been obvious to one of ordinary skilled in the art to use the serial bus interface in Safai to connect the digital camera to a printer system with the motivation of automatically transmitting the images from the digital camera to the printer or any other device connected to the printer system.

9. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Safai, US 6,642,956 B1 in view of Dalton, Patent 5,493,332.

Regarding claim 18, Safai does not explicitly teach that one or more interface units is a parallel interface unit communicating with a take button for initiating capture of an image by said image capture unit.

However, Dalton teaches a digital signal processor (DSP) (Fig. 2: 30) for a modular electronic imaging system (Fig. 2) having parallel buses communicating with an external trigger port (Fig. 2: 39) (Col. 3, lines 29-38).

Therefore, taking the combined teaching of Safai and Dalton as a whole, it would have been obvious to one of ordinary skilled in the art to use parallel buses to communicate the image processor in Safai with the take button and other components

of the digital camera. The motivation to do so would help the image processor in the digital camera to communicate with different component of the imaging system at the same time as taught by Dalton (Col. 3, lines 29-38).

10. Claims 23 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Safai, US 6,642,956 B1 in view of Takahashi, US 2002/0080247 A1.

Regarding claim 23 and 24, Safai teaches that the image processing units include an image an image enhancement unit (uniformity corrector in fig. 4: 408) performing uniformity correction and white balance (Col. 7, line 66 – col. 8, line 16), also teaches a color conversion unit (RGB reconstruction block in fig. 4: 424) (Col. 9, lines 43-59) and a color interpolation circuit (Fig. 4: 422 and 5: 500) re-sampling image pixels to have full color at each location.

Safai does not explicitly teach a histogram unit and that the image enhancing unit includes a range expansion unit and a sharpen unit,

However, Takahashi teaches an image pickup device (Fig. 3) wherein the camera signal processor (Fig. 3: 6) controls the characteristics of an aperture correction circuit for varying the image sharpness, and to add "fading effect" or "afterimage effect" to the image signal in the image signal processing circuit (Fig. 3: 7) as an additional image effect (Page 8, ¶ 0153). Also, teaches the use of Automatic Gain Control (AGC) amplifier to adjust the output signal of the Correlated Double Sampler (CDS) (Fig. 3: 4) by releasing a gain setting signal for determining the gain of the image signal so as to control the range expansion on the gain (Page 4, ¶ 0080 – ¶ 0082). Furthermore,

Takahashi teaches the use of histogram calculation to perform automatic exposure control (Fig. 19; page 11, ¶ 0216 – ¶ 0221).

Therefore, taking the combined teaching of Safai in view of Takahashi as a whole, it would have been obvious to one of ordinary skill in the art to incorporate in Safai with a histogram calculation to perform automatic exposure, a circuit for varying the sharpness and an AGC to control the range expansion on the gain. The motivation to do so would allow the digital camera to perform image correction depending on the conditions affecting the target to be photographed as taught in Takahashi (Page 1, ¶0010 - ¶0013).

Furthermore, Safai teaches that the image processor is a programmable image processor. Therefore, it would have been obvious to add programs steps of other different image corrections and calculations as desired by users.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (703) 305-8717. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez
Examiner
Art Unit 2612

NDHH
May 25, 2004



NGOC-YEN VU
PRIMARY EXAMINER